Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Petition for Rulemaking Submitted By The Land Mobile Communications Council	)	
	)	RM-9267
Allocation of Spectrum for the Private Mobile Radio Services	)	

REPLY COMMENTS OF THE BOEING COMPANY

The Boeing Company hereby supports the comments that were filed in opposition to the above-captioned petition for rulemaking submitted by the Land Mobile Communications Council.[1] As a major aerospace exporter and extensive user of spectrum including private radio spectrum, Boeing has a strong interest in any reallocation of spectrum used for aeronautical services, and in the Commission's policies regarding spectrum allocated for private use.

As explained below, the LMCC petition presents an incomplete and inaccurate picture of the continuing need for spectrum allocated to aeronautical services and spectrum requirements for "private" land mobile radio users. As such, it would be inappropriate for the Commission to respond to this petition by initiating a rulemaking to consider any reallocation of spectrum now allocated to aeronautical services. Such a rulemaking raises other concerns as well. In particular, Boeing is concerned by the comments made by Commission staff in a subsequent Public Notice in

[1] Petition for Rulemaking submitted by the Land Mobile Communications Council, RM-9267 (filed Apr. 22, 1998).

response to a request for waiver of the Commission's rules filed by the Southern Company.[2] This Public Notice references the LMCC petition and the 1997 amendments to Section 309(j) of the Communications Act regarding competitive bidding to invite comments on broad issues involving the implementation of auctions for the licensing of business and industrial land transportation category channels. Boeing, as a large user of private radio spectrum, has a deep interest with respect to some of the issues raised in the Southern Company petition, and takes the opportunity afforded by these reply comments on the LMCC petition to express its views on these broad issues.

I. THE COMMISSION SHOULD NOT REALLOCATE PORTIONS OF THE 960-1215 MHz BAND

A. New Navigation Systems Will Not Eclipse All Systems Currently Using the 960-1215 MHz Band

Boeing opposes LMCC's request that the Commission reallocate portions of the 960-1215 MHz band. Throughout the world, the 960-1215 MHz band is reserved for aeronautical radio navigation. As the world's leading aircraft manufacturer, Boeing strongly urges the Commission to leave intact the 960-1215 MHz band allocation as it considers reallocating spectrum to meet the needs of private radio services. Boeing joins the Federal Aviation Administration ("FAA") and others that strongly oppose the reallocation of 85 MHz of spectrum in the frequency band 960-1215 MHz.[3]

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[2] Public Notice, DA 98-808 (Released Apr. 28, 1998).

[3] FAA Comments filed via National Telecommunications & Information Administration ("NTIA"), IRAC Chairman, Mr. William T. Hatch, June 5, 1998.

LMCC's petition is based on the premise that spectrum currently allocated to aeronautical navigation services will be unnecessary once new navigation systems become operational. Specifically, the plans of one region (the United States) to replace exiting navigation aids with satellite-based navigation systems were cited.[4] In light of recent concerns over the robustness of GNSS in the presence of interference, these plans are being re-evaluated.[5] LMCC also predicts that the Tactical Air Navigation ("TACAN") and Distance Measuring Equipment ("DME") upon which both commercial and military aircraft heavily rely will gradually be completely replaced by newer systems. Although Boeing agrees that the new technologies show promise, this potential provides little justification for reallocating the bandwidth used to provide such vital functions for aircraft navigation.

It takes time to modify the worldwide Air Traffic Management infrastructures. It is not uncommon for transition periods to be on the order of decades for new civil aviation navigation systems to become operational. Acceptance of new satellite based systems by the various states around the world is not universal. Discovery of new technologies does not mean that adoption is automatic or that current systems can be abandoned. Today, significant work still remains to prove

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4 "The FAA's Plan for Transition to GPS-Based Navigation and Landing Guidance" July 1996.

5 "DOT's Secretary's Report on WAAS to Congress," February 1998 highlighted the vulnerabilities of the GPS signals to interference, outlined mitigation strategies and the potential need for a backup system. FAA Administrator's Task Force on National Airspace System's Modernization, February 1998 recommended the FAA should address the risks posed by interference and gain consensus among the users about the plan to switch from ground to satellite based navigation.

that the satellite-based navigation systems are capable of providing a sole means of navigation capability.

Because of Boeing's interest in ensuring safety in aircraft navigation, Boeing is at the forefront of development for navigation technologies. Boeing has been a pioneer in Communication, Navigation and Surveillance ("CNS") for Air Traffic Management ("ATM") services ("CNS/ATM services"), Required Navigation Performance ("RNP") airspace development, Area Navigation ("RNAV") operations, and in the development of Global Navigation Satellite Systems ("GNSS"), as is evidenced by the introduction of Future Air Navigation Systems ("FANS") I, the first generation of satellite-based CNS technology for commercial air transport airplanes. Unquestionably, these new services are of great potential benefit to the global aviation industry. The new navigation systems increase navigational accuracy and, thereby improve with it, air space safety, capacity, and efficiency. Such applications, operations, and services, however, will by no means eliminate the aviation industry's need for the 960-1215 MHz band.

As noted by ARINC, several essential systems currently operate using the 960-1215 MHz band, including DME, Secondary Surveillance Radar, and Airborne Collision Avoidance System ("ACAS"). These systems are employed internationally, and based on standards accepted by the International Civil Aviation Authority ("ICAO"). A policy decision to reallocate this band without regard to international reliance on the systems it supports would be irresponsible. Boeing agrees with NTIA that "the 960-1215 MHz band cannot be considered for reallocation."[6]

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[6] NTIA Comments, June 5, 1998, p. 3.

Reallocation of even a portion of the 960-1215 Mhz band is impractical. The DME system uses a channel pairing scheme with the Instrument Landing System (ILS), VHF Omnidirectional Radio Range (VOR) system and the Microwave Landing System (MLS).[7] Reallocation of any portion of the 960-1215 MHz, even within a region or individual state, would impact the management of spectrum for these other systems and would possibly constrain frequency assignments in bordering regions and states. Coordination of frequency assignments between nearby states (*e.g.* within Europe) is already a difficult task without the added constraint of band segmentation and reallocation within regions. Similarly, coordination of frequency assignments with Canada could be expected to be equally difficult.

B. Federally Authorized Decisionmaking Bodies Rely Upon the Allocation of the 960-1215 MHz Band to Aeronautical Navigation Systems in Setting Standards for Navigation Equipment

Boeing agrees with ARINC when it states that the "LMCC's view of the band 960-1215 MHz might become available seems to be based on an incomplete reading of the RTCA SC-185 Report entitled *Aeronautical Spectrum Planning for 1997-2010.* Furthermore, and as stated by ARINC,[8] the LMCC petition ignores the fact that the document cited recommends "the 960-1215 MHz band be retained for current and future aeronautical safety-critical navigation and surveillance

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[7] ICAO International Standards and Recommended Practices for Air Navigation Services, Annex 10, Volume I, Table A. DME/MLS angle, DME/VOR and DME/ILD/MLS channeling and pairing.

[8] ARINC filing, Page 7, Line 2.

applications."[9] LMCC's request that the Commission reallocate portions of the 960-1215 MHz band to private mobile radio services also overlooks the possibility that other organizations that are charged with developing standards for radio navigation are already developing plans for the use of the spectrum. For example, several different frequencies within this band are currently considered to be candidates for the third civil frequency for GPS.[10] This third civil frequency will improve the overall robustness of GNSS and support safety of life critical missions such as precision approach and landing with Differential GNSS ("DGNSS").

Any Commission action that would affect the use of the 960-1215 MHz band by aircraft and aeronautical navigation systems should incorporate input of the Radio Technical Commission for Aeronautics ("RTCA"). The RTCA is a private, non-profit organization that uses a consensus-based decisionmaking process to develop standards for aviation communication, navigation and surveillance. The FAA often plays a leading role in the development of such standards. Additionally, RTCA functions as a Federal Advisory Committee to develop recommendations that provide the FAA with a basis for policy decisions. The Commission should not disregard the FAA/RTCA consensus-based decisionmaking process by granting LMCC's petition to reallocate spectrum in the 960-1215 MHz band.

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9 RTCA, Spectrum Planning document at 72.

10 GPS IGEB(SG) 042398-2 Presentation "LINK-16/GPS Lc Working Group Presentation to the Interagency GPS Executive Board - Steering Group lists 1059 MHz and 1205 MHz as candidates for the third civil frequency.

II. THE COMMISSION'S POLICIES FOR THE ALLOCATION OF PRIVATE RADIO SPECTRUM MUST TAKE INTO ACCOUNT THE DIFFERING SITUATIONS OF SERVICE VENDORS AND PRIVATE USERS.

A. There Is A Continuing Need For Private Radio Spectrum; The Commission Should, However, Distinguish Between Vendors And Users In The Means By Which It Awards Licenses For Such Spectrum.

Boeing generally supports the LMCC position that important differences exist between commercial mobile radio services ("CMRS") and private mobile radio services ("PMRS") in terms of the markets served and the applications deployed by these services. The Company also agrees that new spectrum allocated to private use could be very beneficial. Boeing believes, however, that the Commission must go further in its analysis of the policy issues confronting the allocation and use of private radio spectrum, and take all steps necessary to avoid further commercialization of private radio spectrum (*e.g.*, the turnover of the 800 and 900 MHz PLMR bands to commercial service providers).[11]

As previously recommended and discussed in greater detail below, the efficient use of spectrum should be the Commission's goal in any proceeding it may initiate to revise its private radio licensing policies.[12] Boeing agrees with ITA that the Commission must necessarily address the definition of PMRS in this process.[13] In so doing, Boeing urges the Commission to distinguish

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[11] PR Docket 93-144, Amendment of Part 90 of the Commissions Rules to Facilitate Future Development of SMR Systems in the 800 MHz Frequency Band.

[12] *See* Comments of the Boeing Company, PR Docket No. 92-235 at 10, 13.

[13] *See* ITA Comments at 4.

between truly private users, who use spectrum for internal communications needs,[14] and commercial vendors that offer services that, although not within the statutory definition of CMRS, are nonetheless commercial service providers.

In comments filed in the Commission's "refarming" proceeding, Boeing noted its concerns that the Commission's application of market-based mechanisms, such as auctions, do not account for the fundamental differences between private users and vendors of mobile radio services.[15] As Boeing has explained, the potential auction of spectrum to, and interference risks from, commercial vendors and service providers would discourage the deployment of spectrally efficient technologies by truly private users. Moreover, the fundamental unfairness of pitting private radio users (that use private radio spectrum to satisfy their internal communications needs) against entrepreneurs and commercial providers (that sell the use of spectrum to third parties for profit) is counter to the public interest.

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[14] Boeing endorses the following definitional and policy statement of MRFAC:

> *"Private Radio" serves the licensee's internal communications needs, protects the safety of life, property, and the environment, and promotes the competitiveness of American business and industry. The productivity of American business and industry depends on spectrum allocated for Private Radio. The public interest is well served by that allocation. Therefore, Private Radio spectrum should not be used to provide communications service to third parties.*
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> *The efficient use of radio spectrum is an obligation of all licensees. Regulatory policy should reward spectrum efficiency and penalize inefficiency. Auctions are inappropriate for the allocation of Private Radio spectrum.*

[15] *See* Comments of The Boeing Co., PR Docket No. 92-235, at 3 (filed Nov. 20, 1995), and Reply Comments of The Boeing Co., PR Docket No. 92-235, at ii and 2 (filed Jan. 11, 1996).

Boeing recommends the Commission endorse a definition of private radio that, like MRFAC, first clarifies, then excludes commercial users, or resellers, of private radio spectrum.[16] Private Radio users "share" in a coordinating and cooperating environment while, by definition, commercial service providers operate in a competitive environment. To continue to blur the line between the spectrum needs of truly private radio users and those who obtain and "resell" private radio spectrum in the form of commercial services creates inequities, regulatory confusion, and reduces the base of commercial service providers from which the Commission should apply auctions and level the competitive commercial playing field.

Many users rely on private radio to satisfy specialized, yet critical, communications needs for which wireline and wireless commercial services are either unsuitable, economically impractical, or unavailable. Because there is no substitute for private radio spectrum, these users would have no choice but to try to outbid service vendors for auctioned spectrum. For these licensees, the increased costs resulting from auctions would serve only to reduce their ability to compete in the global economy.

B. Rather Than Auctioning Spectrum Allocated To Private Users, The Commission Should Pursue Policies Designed To Maximize The Efficient Use Of Such Spectrum.

For commercial wireless services, auctions may be an optimal market means to allocate spectrum among potential licensees sharing common market incentives. In those cases, the scarcity of the resource translates to an auction value which is then balanced in the bidder's judgment

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[16] See note 14, *supra*.

against the expected revenues that can be gained through the sale of the use of such spectrum to third parties. Generally speaking, more spectrum should equate to more revenues, and the reduced availability of spectrum to potential competitors should foster greater market share and higher margins. "Truly" private spectrum users, however, view the use of spectrum as one of many tools in an industrial process. Thus, the reaction of these users to the suggestion that the most efficient allocation of spectrum is through the auction of such spectrum among competing service providers is similar to the reaction of a skilled workman to the suggestion that the safeguarding and customization of his precision instruments should be foregone in favor of tools rented on a first-come, first-served basis from a commercial provider who has additional limits on where and how the tools can be used.

Boeing thus supports the position of ITA that the Commission should pursue certain lease fee authority from Congress as an alternative licensing mechanism for new allocations of spectrum for private wireless entities.[17] Boeing's support, however, comes with the following important proviso. Lease fees should be efficiency-based, and should be applied only to private users, not those who provide services for compensation.

In several previously referenced filings in the Commission's "refarming" docket, Boeing has advocated the adoption of an efficiency-based system of lease fees.[18] Such a system should

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[17] *See* ITA Comments at Page 6, Section IV.

[18] *See* Boeing's Ex Parte Presentation to the FCC, PR Doc. No. 92-235, "Frequency Spectrum Issues", at 16 (filed Sept. 25, 1995), "Comments of The Boeing Co., PR Docket No. 92-235, at 3 (filed Nov. 20, 1995), Reply Comments of The Boeing Co., PR Docket No. 92-235, at ii (filed Jan. 11, 1996), and Boeing's Ex Parte

entail a graduated fee structure based on objectively verifiable efficiency-related factors, such as the amount of assigned bandwidth, system coverage area, the licensee's use of spectrally efficient technology, the number of channels per unit of spectrum and/or the amount of throughput per channel. This structure would reward efficient spectrum users with lower fees and discourage inefficient use through higher fees. It would also encourage the deployment of spectrally efficient technologies, while at the same time recovering for the taxpayer an appropriate portion of the value of the spectrum being licensed, without the negative consequences that auctions, or auction based user fees, would have for private users. Auctions (and auction-based user fees) have no relevance to the economics or characteristics of truly private radio users.

C. The Congressional Mandate To Implement Licensing Through Competitive Bidding Does Not Extend To Licenses For Private Users.

Any implementation of the Balanced Budget Act of 1997 must take into consideration that the Commission's competitive bidding authority is restricted by Section 309(j)(6)(E) of the Act, which states that nothing in the statute should "be construed to relieve the Commission of the obligation in the public interest to continue to use engineering solutions, negotiation, threshold qualifications, and other means in order to avoid mutual exclusivity."[19]

Boeing thus supports the positions of LMCC and ITA (and the other parties) that have pointed out this salient fact to the Commission in this proceeding, and its particular relevance to private radio licensing. The Commission should not attempt to manufacture mutually exclusive

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Presentation to the FCC, "Frequency Spectrum Issues - Inefficiency License Fees" (filed Feb. 21, 1997).

licensing situations simply as a pretext to pursue auctions. The essence of a successful private radio allocation policy is spectrum sharing and accommodation of users' needs based on the technical characteristics of the application sought. Although sole use of a frequency on a site-by-site basis may be required in certain cases (because of technical reasons needed to become spectrally efficient; *e.g.*, trunking), "mutually exclusive" applications may still be avoided through a "user-friendly" licensing policy.

The definitional and efficiency-based fee approaches that Boeing has suggested above are consisted with the Congressional direction provided in section 309(j)(6)(E). Taking into account all these factors, there is simply no reason why the Commission should initiate an auction policy that will severely disadvantage legitimate private users of radio spectrum.

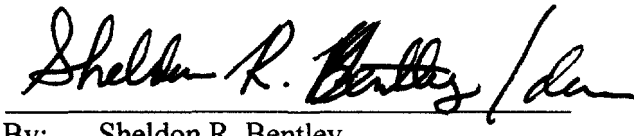
[19] 47 U.S.C. § 309(j)(6)(E).

III. CONCLUSION

For all of the reasons set forth above, Boeing urges the Commission to reject the petition filed by LMCC to initiate a rulemaking for the purpose of reallocating spectrum currently allocated to aeronautical services. In any proceeding that the Commission may initiate to revise its private radio licensing policies, the Commission should follow the proposals made by Boeing herein, so that the public interest benefits of private use of radio spectrum will be fully realized.

Respectfully submitted,

THE BOEING COMPANY



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